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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,371	05/15/2007	Roberto Lanzo	09952.0073	9215

22852 7590 12/24/2009
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EXAMINER

SARWAR, BABAR

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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12/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,371	Applicant(s) LANZO ET AL.	
	Examiner BABAR SARWAR	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed **09/23/2009** have been fully considered but they are not persuasive.

2. **Claims 1-17** had been previously cancelled.

3. **Claim 18** has been amended.

4. **Claims 18-34** are currently pending.

"wherein computing the cell coverage comprises: dividing the region around said radio base station into a number of first areas ... [and] dividing at least some of said first areas into a number of second areas." and "for at least some target second areas of said second areas, computing respective quantities indicative of the cell coverage within said target second areas, each quantity being computed for the respective target second area as a function of data describing an environment between said radio base station and said target second area along a propagation path of a radioelectric signal radiating out from said radio base station and passing through said target second area; [and] each quantity being computed for the respective target second area as a function of data describing the environment within at least some second areas close to at least one of said radio base station and said target second area along the radioelectric signal propagation path, and as a function of data describing the environment within at least some first areas along the remaining stretch of the radioelectric signal propagation path." 1) "data describing the environment between said radio base station and said target second area along a propagation path..."; (2) "data describing the environment

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within at least some second areas close to at least one of said radio base station and said second area along the radioelectric signal propagation path..."; and (3) "data describing the environment within at least some first areas along the remaining stretch of the radioelectric signal propagation path" read on Bernardin in view of Olof as follows;

Bernardin discloses a robust method for determining the boundaries of cells and the associated reliability of the RF coverage within these boundaries. The invention accurately determines the average range from the base station to the cell edge from RF signal strength measurements with a linear regression approach. The accuracy of this estimate is quantified both as a range uncertainty (e.g. ± 100 meters) and as cell coverage reliability (i.e. area/edge) through 1) simulation, 2) analysis of real data, and 3) theoretical analysis. It is shown that if the estimate of the cell radius meets the desired accuracy, then the corresponding estimates of coverage reliability (both area and edge) are more than sufficiently accurate. It is recommended that radio survey analyses incorporate this test as part of the coverage validation process. Bernardin's object of the invention is to determine the number of signal strength measurements needed to accurately estimate the cell radius R from the base station to the cell edge for both a given cell contour and cell area reliability. A further object of the invention is to estimate the coverage reliability of a cell with a finite number of signal strength measurements. A still further object of the invention is to minimize the area from which samples are taken in estimating cell radius. Bernardin further discloses that the areas are divided into the first areas, and the second areas i.e., the cell coverage in **Fig. 1a-b**. Therefore,

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Bernardin discloses that the reliability is computed by the propagation method. He further discloses that the areas within the cell edge have greater reliability. He also discloses the fade margin which included measurements and the cell reliability is based on received points within the large area i.e., cell radius as disclosed in **Fig. 1a-b and Col. 4:51-52, as well as Col.4:58-63**. Thus Bernardin shows the above mentioned claimed limitations.

In regards to the applicant arguments concerning combination of the references, both of the references are from the same field, i.e., communication system and concerned analogues topics. Therefore, the examiner contends that the references would be combinable to one of skilled in the art. Concerning the applicant's arguments regarding motivation to combine the references, the motivation to combine was shown in the secondary reference. Therefore, the argued limitations read upon the cited references or are written broad such that they read upon the references.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18, 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Bernardin et al. (US 6,173,185 B1), hereinafter referenced as Bernard.

Consider **claim 18**, Bernard discloses a method for planning a radio communications network (**Abstract, where Bernard discloses determining the**

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boundaries of cells and the associated reliability of the RF coverage within these boundaries). Bernard discloses that computing cell coverage, to indicate a region around a radio base station where a radio electric signal radiating out from the radio base station copes with given requirements **(Abstract, where Bernard discloses the cell coverage reliability)**; wherein computing the cell coverage comprises: dividing the region around said radio base station into a number of first areas **(Figs.1a-b, where Bernard discloses first areas i.e. cell edge)**; dividing at least some of said first areas into a number of second areas; and for at least some target second areas of said second areas, computing respective quantities indicative of the cell coverage within said target second areas **(Fig. 1b, where Bernard discloses areas within cell edge with greater reliability)**, each quantity being computed for the respective target second area as a function of data describing an environment between said radio base station and said target second area along a propagation path of a radio electric signal radiating out from said radio base station and passing through said target second area **(Fig. 1b, where Bernard discloses reliability values computed by propagation method)**; each quantity being computed for the respective target second area as a function of data describing the environment within at least some second areas close to at least one of said radio base station and said target second area along the radio electric signal propagation path, and as a function of data describing the environment within at least some first areas along the remaining stretch of the radio electric signal propagation path **(Col. 4:24-26, where Bernard discloses fade margin, Col. 4:51-52, where Bernard discloses that the fading margin included in the measurements, Col. 4:58-63,**

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where Bernard discloses that the cell reliability is based on received points within large area i.e. cell radius).

Consider **claim 33**, Bernard discloses everything claimed as implemented above (see claim 18). In addition, Bernard discloses that wherein a processing capable of being programmed to implement the method (**Fig. 5, where Bernard discloses computer system to implement the method**).

Claim 34, as analyzed with respect to limitations as discussed in claim 33.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernard in view of Olofsson (US 6,047,238), hereinafter referenced as Olof.

Consider **claim 19**, Bernard discloses everything claimed as implemented above (see claim 18). Bernard does not explicitly disclose that wherein computing a second quantity for a target second area comprises: checking availability of data describing the environment within at least some second areas close to said radio base station and said target second area; forming a mixed resolution environment profile describing the environment between said radio base station and said target second area along said radio electric signal propagation path, said mixed resolution environment profile describing the environment within at least some second areas close to at least one of

said radio base station and said target second area depending on environment descriptive data availability, and within at least some first areas along the remaining stretch of the radio electric signal propagation path; and computing said quantity on the basis of said mixed resolution environment profile.

Olof discloses that wherein computing a second quantity for a target second area comprises: checking availability of data describing the environment within at least some second areas close to said radio base station and said target second area **(Abstract, where Olof discloses detection of obstacles while generating paths profiles, therefore describing the environment and availability of data)**; forming a mixed resolution environment profile describing the environment between said radio base station and said target second area along said radio electric signal propagation path **(Fig. 1, where Olof discloses generation of paths and obstructions observed in radio electric signal propagation path)**, said mixed resolution environment profile describing the environment within at least some second areas close to at least one of said radio base station and said target second area depending on environment descriptive data availability, and within at least some first areas along the remaining stretch of the radio electric signal propagation path; and computing said quantity on the basis of said mixed resolution environment profile **(Figs. 4, 5, where Olof discloses total path profile separation and adjacent obstruction and generating path profiles based path profiles comparison)**. Therefore it would have been obvious to one of ordinary skills in the art at the time the invention was made to modify Bernard with the teachings of Olof so as to improve the topographical data as discussed on **Col.**

1:40-41.

Consider **claim 20**, the combination teaches everything claimed as implemented above (see claim 19). In addition, Olof discloses that wherein forming a mixed resolution environment profile comprises: identifying obstacles encountered by said radio electric signal within at least some first areas along the propagation path from said radio base station to said target second area; and forming the part of the mixed resolution environment profile describing the environment within at least some first areas along the remaining stretch of the radio electric signal propagation path so that said part describes the obstacles identified within said first areas (**Fig. 5, where Olof discloses generation, translation, transformation, and comparison of path profiles, therefore mixed resolution environment profile**).

Consider **claim 21**, the combination teaches everything claimed as implemented above (see claim 20). In addition, Olof discloses that wherein forming the part of the mixed resolution environment profile describing the environment within at least some first areas along the remaining stretch of the radio electric signal propagation path so that said part describes the obstacles identified within said first areas comprises: consolidating identified obstacles which are spaced apart one from another at a distance lower than a given distance; and forming the part of the mixed resolution environment profile describing the environment within at least some first areas along the remaining stretch of the radio electric signal propagation path so that said part describes said consolidated obstacles (**Fig. 4, where Olof discloses translated and transformed path profiles**).

Consider **claim 22**, the combination teaches everything claimed as implemented above (see claim 20). In addition, Olof discloses that wherein obstacles encountered by said radio electric signal within at least some first areas along the propagation path from said radio base station to said second area are identified according to a stretched string technique (**Fig. 1, where Olof discloses propagation of primary and adjacent path profiles**).

Consider **claim 23**, the combination teaches everything claimed as implemented above (see claim 19). In addition, Olof discloses that wherein forming a mixed environment profile comprises: forming a first end and a second end of said mixed resolution environment profile describing the environment within at least some second areas close to said radio base station and said target second area depending on environment descriptive data availability (**Fig. 1, where Olof discloses propagation of primary and adjacent path profiles**).

Consider **claim 24**, the combination teaches everything claimed as implemented above (see claim 19). In addition, Olof discloses that wherein computing said quantity on the basis of said mixed environment profile comprises: identifying obstacles encountered by said radio electric signal along the propagation path from said radio base station to said target second area on the basis of said mixed resolution environment profile; and computing said quantity on the basis of said identified obstacles (**Fig. 5, where Olof discloses comparison of primary and adjacent path profiles**).

Consider **claim 25**, the combination teaches everything claimed as implemented

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above (see claim 24). In addition, Olof discloses that wherein said obstacles are identified according to a stretched string technique (**Fig. 3, where Olof discloses translated obstructions**).

Consider **claim 26**, the combination teaches everything claimed as implemented above (see claim 24). In addition, Olof discloses that wherein computing said quantity on the basis of said identified obstacles comprises: computing attenuation by diffraction on said identified obstacles of a radio electric signal radiating out from said radio base station along the propagation path to said second area, wherein computing attenuation by diffraction comprises: computing a first contribution due to orographic obstacles; computing a second contribution due to buildings; computing a third contribution due to vegetation; and computing said attenuation by diffraction as a weighted sum of said first, second and third contributions (**Figs. 3, 4, where Olof discloses total path profile separation and translated obstruction**).

Consider **claim 27**, the combination teaches everything claimed as implemented above (see claim 18). In addition, Olof discloses that wherein the environment within second areas close to said radio base station and said target second area along the radio electric signal propagation path is described by using a first resolution and the environment within first areas along the remaining stretch of the radio electric signal propagation path is described by using a second resolution lower than said first resolution (**Fig. 1, where Olof discloses raster separation and raster points and points used in path profiles**).

Consider **claim 28**, the combination teaches everything claimed as implemented

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above (see claim 18). In addition, Olof discloses that wherein said data describing the environment within said second areas close to said radio base station and said second area along the radio electric signal propagation path include average ground altimetry, information as to the presence of a building, vegetation or nothing, and height of the building or vegetation **(Fig. 1, where Olof discloses obstructions perceived in path profiles)**.

Consider **claim 29**, the combination teaches everything claimed as implemented above (see claim 18). In addition, Olof discloses that wherein said data describing the environment within said first areas along said at least part of the remaining stretch of the radio electric signal propagation comprises average ground altimetry **(Col. 6:12-19, where Olof discloses evaluating uncertainties of path profiles method)**.

Consider **claim 30**, the combination teaches everything claimed as implemented above (see claim 29). In addition, Olof discloses that wherein a quantity for a respective second area occupied by a building is computed as a function of quantities computed for second areas surrounding the second area occupied by the building **(Fig. 4, where Olof discloses translation, transformation and comparison path profiles)**.

Consider **claim 31**, the combination teaches everything claimed as implemented above (see claim 30). In addition, Olof discloses that wherein a quantity for a respective second area occupied by a building is computed as a weighted average of quantities computed for second areas surrounding the second area occupied by the building **(Col. 6:12-19, where Olof discloses average and standard deviation, primary and worst adjacent)**.

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Consider **claim 32**, the combination teaches everything claimed as implemented above (see claim 31). In addition, Olof discloses that wherein said quantities computed for second areas surrounding the second area occupied by the building are weighted by using respective weights which are inversely proportional to the squared distance between the second area occupied by the building and the second areas surrounding the second area occupied by the building **(Col. 6:12-19, where Olof discloses average and standard deviation, primary and worst adjacent)**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BABAR SARWAR whose telephone number is (571)270-5584. The examiner can normally be reached on MONDAY TO FRIDAY 09:00 A.M -05:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NICK CORSARO can be reached on (571)272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BABAR SARWAR/
Examiner, Art Unit 2617

/BS/

/NICK CORSARO/

Supervisory Patent Examiner, Art Unit 2617